JCB
THE JOURNAL OF CELL BIOLOGY
VOL. 177, NO. 1, APRIL 9, 2007

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- Centriolar inequality
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In fly neuroblasts, one centriole (yellow) remains stationary and retains microtubule-organizing activity, while the other (orange) loses microtubules and migrates to the opposite side of the cell. Their positions define an early asymmetric division axis.
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87 Evidence for a stem cell hierarchy in the adult human breast
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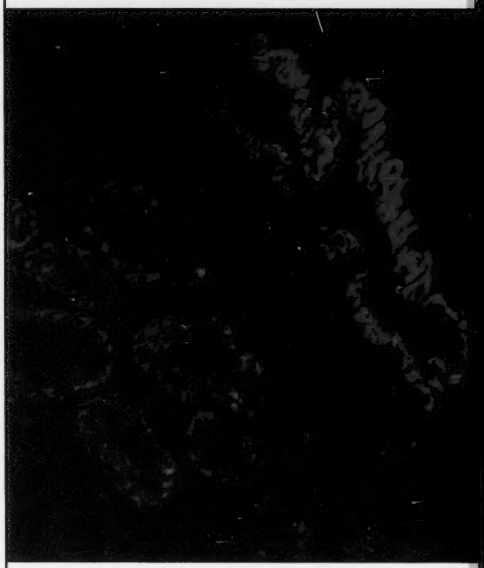

Adult human breast stem cells (red) are found in ductal regions. Lineage-restricted progenitor cell types (green) reside outside ducts in lobules.
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Moving chromosomes (blue) towards the poles at anaphase requires Spastin, Fidgetin, and Katanin (red), all of which sever the spindle microtubules (green).
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Trafficking of an *H. pylori* toxin, called VacA (red), from early to late endosomes depends on actin (green), not microtubules.
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489 Vascular endothelial growth factor can signal through platelet-derived growth factor receptors
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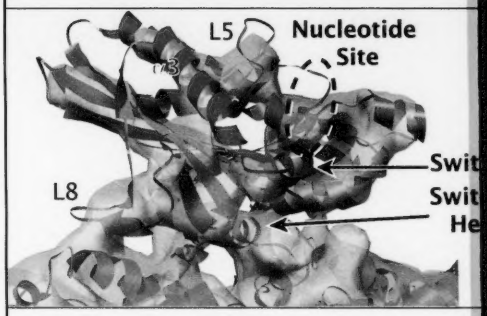

Cryo-EM reconstructions of kinesin-decorated microtubules in the absence of nucleotide suggest that the switch I helix helps to eject ADP when kinesin initially binds to the filament.
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613 Ubiquitination of serine, threonine, or lysine residues on the cytoplasmic tail can induce ERAD of MHC-I by viral E3 ligase mK3
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625 Bim_S-induced apoptosis requires mitochondrial localization but not interaction with anti-apoptotic Bcl-2 proteins
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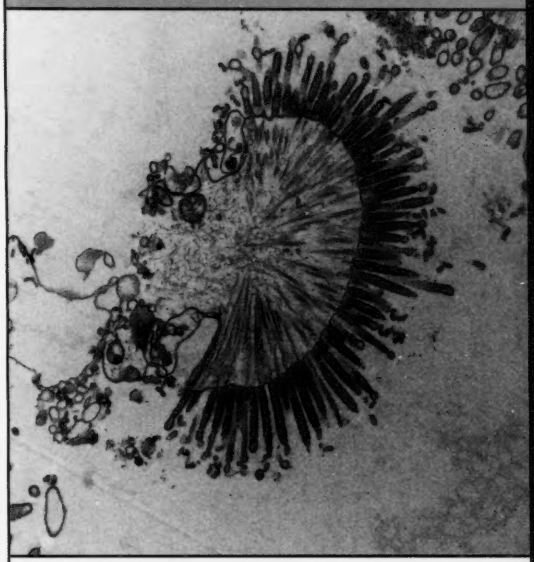

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Activation of a myosin motor pushes apical membrane towards the tips of brush border microvilli, creating shed vesicles.
See page 671.

647 Stra13 regulates satellite cell activation by antagonizing Notch signaling
Hong Sun, Li Li, Cécile Vercherat, Neriman Tuba Gulbagci, Sujata Acharjee, Jiali Li, Teng-Kai Chung, Tin Htwe Thin, and Reshma Taneja

659 Myosin V, Rab11, and dRip11 direct apical secretion and cellular morphogenesis in developing *Drosophila* photoreceptors
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671 Myosin-1a powers the sliding of apical membrane along microvillar actin bundles
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707 Myelin protein zero/P0 phosphorylation and function require an adaptor protein linking it to RACK1 and PKCα
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717 GPI-anchored receptor clusters transiently recruit Lyn and Gα for temporary cluster immobilization and Lyn activation: single-molecule tracking study 1
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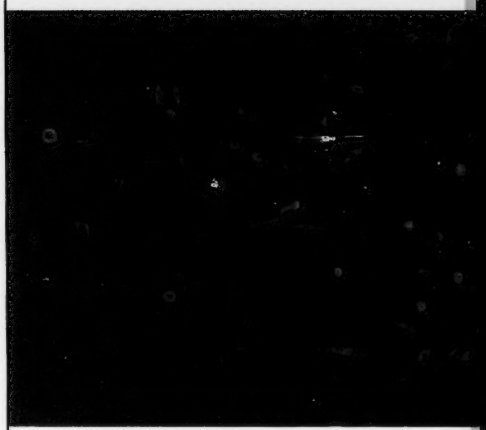
731 Dynamic recruitment of phospholipase Cγ at transiently immobilized GPI-anchored receptor clusters induces IP_3–Ca^{2+} signaling: single-molecule tracking study 2
Kenichi G.N. Suzuki, Takahiro K. Fujiwara, Michael Edidin, and Akihiro Kusumi



Muscle regeneration and myogenesis is defective in myoblasts lacking the Stra13 Notch inhibitor.
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- Coilin to the centromere's rescue
- Closing the connexin connection
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769 Reciprocal inhibition between Pax7 and muscle regulatory factors modulates myogenic cell fate determination
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781 DA-Raf1, a competent intrinsic dominant-negative antagonist of the Ras–ERK pathway, is required for myogenic differentiation
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795 p38 MAPK-dependent shaping of the keratin cytoskeleton in cultured cells
Stefan Wöll, Reinhard Windoffer, and Rudolf E. Leube

809 Essential role of PI3-kinase and phospholipase A2 in *Dictyostelium discoideum* chemotaxis
Peter J.M. van Haastert, Ineke Keizer-Gunnink, and Arjan Kortholt

817 An essential role for the SHIP2-dependent negative feedback loop in neuritogenesis of nerve growth factor–stimulated PC12 cells
Kazuhiro Aoki, Takeshi Nakamura, Takanari Inoue, Tobias Meyer, and Michiyuki Matsuda

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Merlin (green) blocks EGF (red) by locking its receptor in a membrane compartment from which it cannot signal or be internalized.
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829 Syndecan-2 induces filopodia and dendritic spine formation via the neurofibromin–PKA–Ena/VASP pathway
Yi-Ling Lin, Ya-Ting Lei, Chen-Jei Hong, and Yi-Ping Hsueh

843 The Ig cell adhesion molecule Basigin controls compartmentalization and vesicle release at *Drosophila melanogaster* synapses
Florence Besse, Sara Mertel, Robert J. Kittel, Carolin Wichmann, Tobias M. Rasse, Stephan J. Sigrist, and Anne Ephrussi

857 Nodes of Ranvier and axon initial segments are ankyrin G–dependent domains that assemble by distinct mechanisms
Yulia Dzhashiashvili, Yanqing Zhang, Jolanta Galinska, Isabel Lam, Martin Grumet, and James L. Salzer

871 $\alpha_4\beta_1$ integrin and erythropoietin mediate temporally distinct steps in erythropoiesis: integrins in red cell development
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881 Regulation of connexin43 gap junctional communication by phosphatidylinositol 4,5-bisphosphate
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905 Ubiquitination differentially regulates clathrin-dependent internalization of protease-activated receptor-1
Breann L. Wolfe, Adriano Marchese, and JoAnn Trejo

917 Three-dimensional architecture of murine rod outer segments determined by cryoelectron tomography
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927 uPAR-induced cell adhesion and migration: vitronectin provides the key
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941 Motoring microvillar membrane
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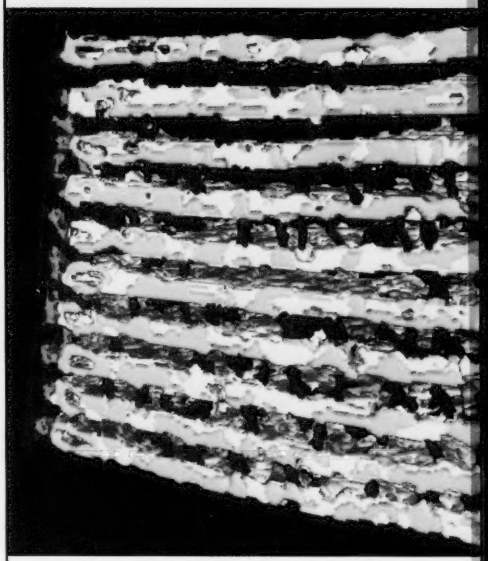

Cryo-ET of the rod outer segment discs (yellow) and plasma membrane (blue) reveals spacers that maintain distance between adjacent discs (red) and between discs and membrane (orange).
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Basigin (green) is an IG domain–containing protein that regulates synaptic strength and compartmentalization at neuromuscular junctions.
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981 Cdc14-regulated midzone assembly controls anaphase B
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995 Quantitative analysis of an anaphase B switch: predicted role for a microtubule catastrophe gradient
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Fly cells lacking Spindly, which targets dynein to kinetochores, arrest in metaphase (central cell) due to the persistence of checkpoint proteins (green) on kinetochores and are elongated during interphase (surrounding cells).
See page 1005.

1005 Spindly, a novel protein essential for silencing the spindle assembly checkpoint, recruits dynein to the kinetochore
Eric R. Griffis, Nico Stuurman, and Ronald D. Vale

1017 A novel role in cytokinesis reveals a housekeeping function for the unfolded protein response
Alicia A. Bicknell, Anna Babour, Christine M. Federovitch, and Maho Niwa

1029 The Q_o site of the mitochondrial complex III is required for the transduction of hypoxic signaling via reactive oxygen species production
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1037 C/EBPδ regulates cell cycle and self-renewal of human limbal stem cells
Vanessa Barbaro, Anna Testa, Enzo Di Iorio, Fulvio Mavilio, Graziella Pellegrini, and Michele De Luca

1051 Essential and distinct roles for cdc42 and rac1 in the regulation of Schwann cell biology during peripheral nervous system development
Yves Benninger, Tina Thurnherr, Jorge A. Pereira, Sven Krause, Xunwei Wu, Anna Chrostek-Grashoff, Dominik Herzog, Klaus-Armin Nave, Robin J.M. Franklin, Dies Meijer, Cord Brakebusch, Ueli Suter, and João B. Relvas

1063 β1 integrin activates Rac1 in Schwann cells to generate radial lamellae during axonal sorting and myelination
Alessandro Nodari, Desirée Zambroni, Angelo Quattrini, Felipe A. Court, Alessandra D'Urso, Alessandra Recchia, Victor L.J. Tybulewicz, Lawrence Wrabetz, and M. Laura Feltri

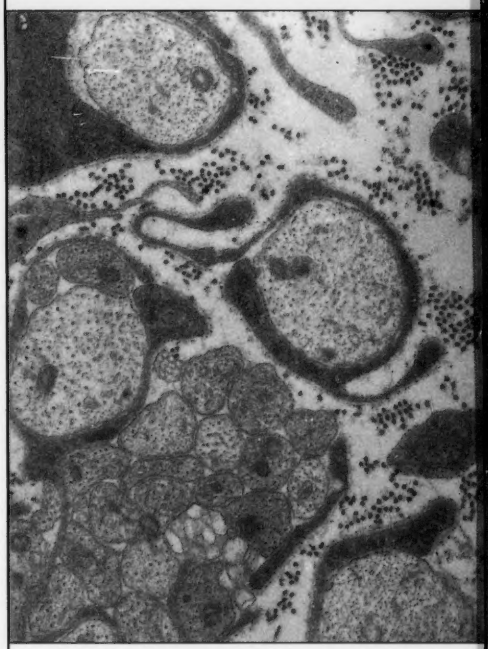
1077 Regulation of synaptic growth and maturation by a synapse-associated E3 ubiquitin ligase at the neuromuscular junction
Zhonghua Lu, Hyun-Soo Je, Paul Young, Jimmy Gross, Bai Lu, and Guoping Feng

1091 *YGR198w* (*YPP1*) targets A30P α-synuclein to the vacuole for degradation
Todd R. Flower, Cheryl Clark-Dixon, Cheynita Metoyer, Hui Yang, Runhua Shi, Zhaojie Zhang, and Stephan N. Witt

1105 TGF-β signaling is essential for joint morphogenesis
Anna Spagnoli, Lynda O'Rear, Ronald L. Chandler, Froilan Granero-Molto, Douglas P. Mortlock, Agnieszka E. Gorska, Jared A. Weis, Lara Longobardi, Anna Chytil, Kimberly Shimer, and Harold L. Moses

1119 p75 neurotrophin receptor regulates tissue fibrosis through inhibition of plasminogen activation via a PDE4/cAMP/PKA pathway
Benjamin D. Sachs, George S. Baillie, Julianne R. McCall, Melissa A. Passino, Christian Schachtrup, Derek A. Wallace, Allan J. Dunlop, Kirsty F. MacKenzie, Enno Klussmann, Martin J. Lynch, Shoana L. Sikorski, Tal Nuriel, Igor Tsigelny, Jin Zhang, Miles D. Houslay, Moses V. Chao, and Katerina Akassoglou

1133 Specific Rab GTPase-activating proteins define the Shiga toxin and epidermal growth factor uptake pathways
Evelyn Fuchs, Alexander K. Haas, Robert A. Spooner, Shin-ichiro Yoshimura, J. Michael Lord, and Francis A. Barr



Schwann cells lacking Rac1 are impaired in their ability to send cytoplasmic processes around axons and thus delay axon sorting and myelination.
See page 1063.

The TGF-β-type II receptor (blue) is necessary for joint formation.
See page 1105.